CLAIMS

We claim:

Sub A1

1. A method for treating multiple myeloma comprising administering to an individual a therapeutically effective amount of a composition comprising an antagonist of an interaction between an α4 subunit-bearing integrin and a ligand for an α4 subunit-bearing integrin.

2. The method of claim 1, wherein the antagonist is an α4 integrin binding agent.

3. The method of claim 1, wherein the antagonist is an α4 integrin ligand binding agent.

4. The method of claim 2, wherein the α4 integrin binding agent is selected from the group consisting of: a) an antibody homolog that antagonizes the interaction of both VLA-4 and α4β7 with their respective α4 ligands; b) an antibody homolog that antagonizes the interaction of VLA-4 with its α4 ligand; and c) an antibody homolog that antagonizes the interaction of α4β7 with its α4 ligand.

5. The method of claim 4, wherein the antibody homolog is selected from the group consisting of a human antibody, a chimeric antibody, a humanized antibody and fragments thereof.

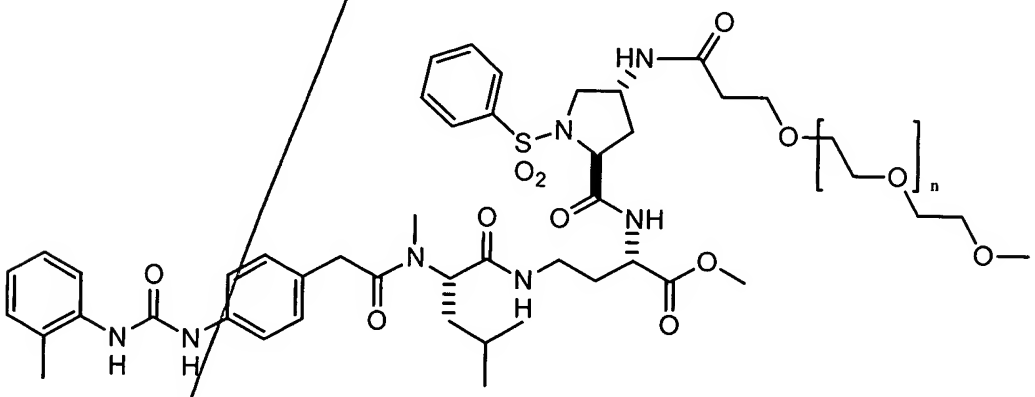
6. The method of claim 3, wherein the α4 integrin ligand binding agent is an anti-VCAM-1 antibody homolog.

7. The method of claim 6, wherein the antibody homolog is selected from the group consisting of a human antibody, a chimeric antibody, a humanized antibody and fragments thereof.

8. The method of claim 1, wherein the antagonist is a small molecule.

9. The method of claim 1, wherein said antagonist is an antagonist of VLA-4.

10. The method of claim 8, wherein said small molecule is:



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11. The method of claim 1, wherein the composition is administered at a dosage so as to provide from about 0.1 to about 20 mg/kg body weight.

12. A method for treating multiple myeloma comprising administering to an individual a therapeutically effective amount of a first composition comprising an antagonist of an interaction between an α4 subunit-bearing integrin and a ligand for an α4 subunit-bearing integrin, wherein said first composition is administered in combination with a therapeutically effective amount of a second composition comprising a compound that is not an antagonist of an interaction between an α4 subunit-bearing integrin and a ligand for an α4 subunit-bearing integrin.

13. The method of claim 12, wherein said compound is a chemotherapeutic agent.

14. The method of claim 13, wherein said chemotherapeutic agent is selected from the group consisting of melphalan, a bisphosphonate, thalidomide, erythropoietin, an antagonist of IL6 and an antagonist of IL15.

15. The method of claim 14, wherein said chemotherapeutic agent is melphalan.

16. The method of claim 12, wherein, to be therapeutically effective,

a dosage of said antagonist is lower when administered in combination with said second composition than not administered in combination with said second composition; or

a dosage of said compound is lower when administered in combination with said first composition than not administered in combination with said second composition, or both.

17. A method for inhibiting bone resorption associated with tumors of bone marrow, the method comprising administering to a mammal with said tumors an antagonist of an interaction between an α4 subunit-bearing integrin and a ligand for an α4 subunit-bearing integrin, in an amount effective to provide inhibition of said bone resorption.

18. The method of claim 17, wherein the antagonist is an α4 integrin binding agent.

19. The method of claim 17, wherein the antagonist is an α4 integrin ligand binding agent.

20. The method of claim 17, wherein the α4 integrin binding agent is an anti-VLA4 antibody homolog or anti-α4β7 antibody homolog.

21. The method of claim 20, wherein the antibody homolog is selected from the group consisting of

a human antibody, a chimeric antibody, a humanized antibody and fragments thereof.

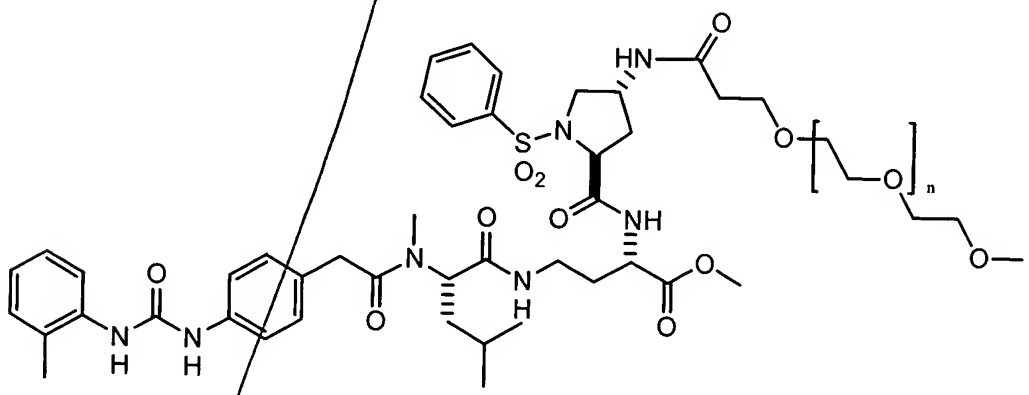
22. The method of claim 19, wherein the α4 integrin ligand binding agent is an anti-VCAM-1 antibody homolog.

23. The method of claim 22, wherein the antibody homolog is selected from the group consisting of a human antibody, a chimeric antibody, a humanized antibody and fragments thereof.

24. The method of claim 17, wherein the antagonist is a small molecule.

25. The method of claim 17, wherein said antagonist is an antagonist of VLA-4.

26. The method of claim 24, wherein said small molecule is:



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27. The method of claim 17, wherein the antagonist is administered at a dosage so as to provide from about 0.1 to about 20 mg/kg, based on the weight of the individual.

28. The method of claim 24, wherein the antagonist is administered in an amount effective to provide a dosage of small molecule of about 0.1-30 mg/kg body weight.

29. The method of claim 17, wherein said antagonist is administered in combination with a compound that is not an antagonist of an interaction between an α4 subunit-bearing integrin and a ligand for an α4 subunit-bearing integrin.

30. The method of claim 29, wherein said compound is a chemotherapeutic agent.

31. The method of claim 30, wherein said chemotherapeutic agent is selected from the group consisting of melphalan, a bisphosphonate, thalidomide, erythropoietin, an antagonist of IL6 and an antagonist of IL15.

32. The method of claim 30, wherein said chemotherapeutic agent is melphalan.

33. The method of claim 29, wherein, to be therapeutically effective,

a dosage of said antagonist is lower when administered in combination with said compound than not administered in combination with said compound; or
a dosage of said compound is lower when administered in combination with said antagonist than not administered in combination with said antagonist,
or both.

34. A method of treating a subject having a disorder characterized by the presence of osteoclastogenesis, the method comprising administering to the subject an antagonist of an interaction between an α4 subunit-bearing integrin and a ligand for an α4 subunit bearing integrin, in an amount sufficient to suppress the osteoclastogenesis.

35. The method of claim 34, wherein the antagonist is an α4 integrin binding agent.

36. The method of claim 34, wherein the antagonist is an α4 integrin ligand binding agent.

37. The method of claim 35, wherein the α4 integrin binding agent is an anti-VLA4 antibody homolog or an anti-α4β7 binding agent.

38. The method of claim 36, wherein the antibody homolog is selected from the group consisting of a human antibody, a chimeric antibody, a humanized antibody and fragments thereof.

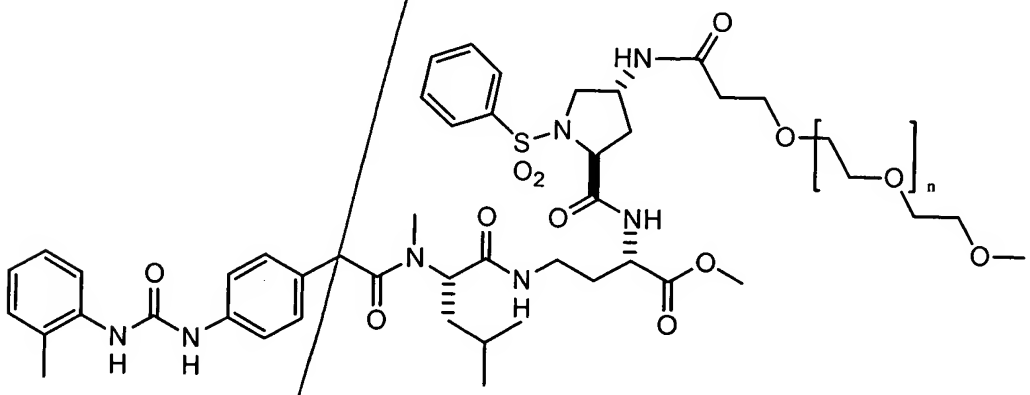
39. The method of claim 36, wherein the α4 integrin ligand binding agent is an anti-VCAM-1 antibody homolog.

40. The method of claim 39, wherein the antibody homolog is selected from the group consisting of a human antibody, a chimeric antibody, a humanized antibody and fragments thereof.

41. The method of claim 34 wherein the antagonist is a small molecule.

42. The method of claim 41, wherein said antagonist is an antagonist of VLA-4.

43. The method of claim 41, wherein said small molecule is:



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44. The method of claim 34, wherein the antagonist is administered at a dosage so as to provide from about 0.1 to about 20 mg/kg body weight.

45. The method of claim 41, wherein the antagonist is administered in an amount effective to provide a dosage of small molecule of about 0.1-20 mg/kg body weight.

46. The method of claim 34, wherein said antagonist is administered in combination with a compound that is not an antagonist of an interaction between an α4 subunit-bearing integrin and a ligand for an α4 subunit-bearing integrin.

47. The method of claim 46, wherein said compound is a chemotherapeutic agent.

48. The method of claim 47, wherein said chemotherapeutic agent is selected from the group consisting of melphalan, a bisphosphonate, thalidomide, erythropoietin, an antagonist of IL6 and an antagonist of IL15.

49. The method of claim 47, wherein said chemotherapeutic agent is melphalan.

50. The method of claim 46, wherein, to be therapeutically effective,
a dosage of said antagonist is lower when administered in combination with said compound than not administered in combination with said compound; or
a dosage of said compound is lower when administered in combination with said antagonist than not administered in combination with said antagonist,

or both.

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